



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

MICHAEL SHU-HUAN WANG ET AL.

Serial No. 10/718,921 (TI-34402)

Filed November 21, 2003

For: CHEMICAL-MECHANICAL POLISHING APPARATUS AND METHOD TO
MINIMIZE SLURRY ACCUMULATION AND SCRATCH EXCURSIONS

Art Unit 2399

Examiner SHANTESE L. McDONALD

Customer No. 23494

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Commissioner for Patents
P. O. Box 1450
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CERTIFICATE OF MAILING OR TRANSMISSION UNDER 37 CFR 1.8

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7-29-06

Jay M. Cantor, Reg. No. 19,906

DECLARATION OF JAY M. CANTOR

Jay M. Cantor declares as follows:

That he is an attorney of record in the subject application.

That he has reviewed the attached Patent Disclosure Form.

That, on information and belief, the attached Patent Disclosure Form was submitted to the Patent Department of Texas Instruments Incorporated prior to September 3, 2003 and signed by applicants and witnessed prior to September 3, 2003.

That, on information and belief, the attached Patent Disclosure Form sets forth the invention as claimed in the subject application in a condition ready for patenting in

accordance with the decision of the United States Supreme Court in Pfaff v. Wells, 525 U.S. 55 (U.S. 1998).

I declare under penalty of perjury the the foregoing is true and correct on information and belief.



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PATENT DISCLOSURE FORM

DOCKET NO. TI-34408 (to be filled in by Patent Activity)

IF ELECTRONICALLY TRANSMITTED, PROCESSING OF YOUR DISCLOSURE CANNOT BE COMPLETED WITHOUT A FOLLOW-UP COPY SIGNED AND DATED BY ALL INVENTORS AND AT LEAST ONE WITNESS.

1. Please suggest a descriptive title for your invention:

CMP scratch reduction method by eliminating conglomerated slurry on polish pad using in-situ extended spray nozzle method.

2. This invention supports strategy: (check 1 or more)

☐
☐
☒
☐
☐

DLP
Materials
Fab/Processes
Assembly/Test/Packaging
Other

DSPS

☐
☐
☐
☐
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Wireless
Video
Set Top
Application Specific
Remote/Access/Networking
Emerging Markets
Mixed Signal & Logic
Mass Storage
Other

3. What is the problem solved by your invention?

CMP wafer scratches due to conglomerated slurry accumulating in the center of polish pad.

4. What is your solution to the problem?

Utilize extension of spray nozzles design, strategically positioned to eliminate slurry build up.

5. When was your solution first conceptually or mentally complete?

Date: _____

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6. What is the first tangible evidence of such completion?

Date: 11/11/11 - initial concept implemented on 1 polisher

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7. What is different about your solution, compared with other solutions to the same problem?

No other solution implemented. This is would be first.

8. What are the advantages of your solution?

Reduces CMP scratches with minor in-fab modification. No interference with other hardware in process area.

9. What TI products, processes, projects or operations currently implement your invention?

Impact C035 products in kfab and fanout to other fabs.

10. What is the date of the first implementation?

Date: .

11. What record exists to prove this date?

photo of hardware on equipment

12. Is there any future implementation planned?

Yes ☒ No ☐

If so, please furnish the TI PART No. or project name

Extended nozzle on PMD CMP for defect reduction.

13. Has the invention been published or disclosed to anyone outside of TI?

Yes ☐ No ☒

When?

If planned - when? (Catalog, advertising, data book, application note, conference paper, magazine article, TI TJ, proposal document.)

Was there a nondisclosure agreement (NDA)?

Yes ☐ No ☐

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14. Has a TI product incorporating the invention been publicly introduced, quoted, sampled or shipped?

Yes ☐ No ☒

When? If planned—when?

15. Was the invention conceived or first implemented in the performance of a government contract or subcontract?

Yes ☐ No ☒

Contract #:

**THE INVENTION DESCRIBED BY THIS DISCLOSURE IS SUBMITTED
PURSUANT TO MY EMPLOYMENT AGREEMENT WITH TEXAS INSTRUMENTS
INCORPORATED OR A TI SUBSIDIARY (SPECIFY):**

Has this disclosure been previously sent to the Patent Department electronically (unsigned)?

Yes ☐ No ☒

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PLEASE PRINT ALL INVENTOR INFORMATION.

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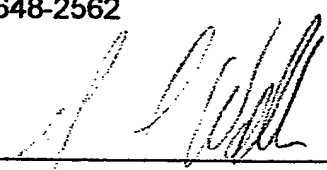
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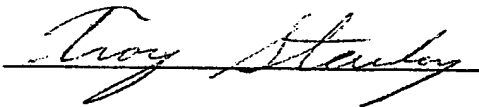
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Date:

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This invention disclosure with any attachments was read and understood by me on



Witness 1:

Date

This invention disclosure with any attachments was read and understood by me on



Witness 2:

Date

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- .B - different Substrate.
- C035.1 Compared to baseline.
.A
- Adjust Intensity of Laser scribe by 3% to attain base line slag. → wed.
- Bottom Notch Next YC measured.

CPISX Software w/PM

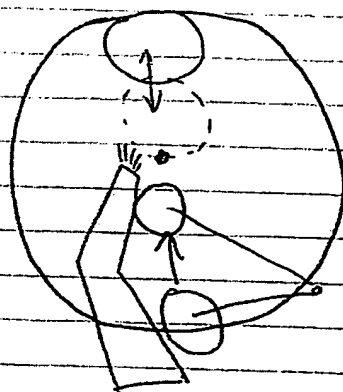
- Fitch
- Groove / No groove
- SSIL Loop vs. BURKET
- KLEBSCH Hi vs Low PSI
- PIND - current vs non current

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4/10

CPISX - PM 2nd Concept
CP25 - PC's.



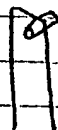
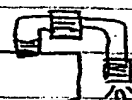
Concept 1

Concept 2



Nozzle Extension

Concept 3



Design Prevents Component
Collision & Cleans Center Pad
Effectively.